Male. Length, 12 mm. Barring sexual characters this agrees with the above description of the female.

Trinidad, West Indies. Described from one male (allotype) and one female (type) collected in June by August Busck, for whom the species is named. One paratype collected at Trinidad, March 20, 1913, by T. W. Urich and G. N. Wolcott.

Type: Cat. No. 16021 U.S.N.M.

NOTES ON RHIPIDANDRI (COLEOPTERA).

By H. S. Barber, *Bureau of Entomology.*

In arranging the National Museum specimens of *Rhipidandrus* a number of obstacles were encountered, and it is thought that the following notes may be of use to someone.

Much confusion has resulted from the assignment of the group to different families. In fact, as Mr. Arrow has pointed out (see below, 1904) three species have been described as Scolytids, one (possibly two) as Scarabæids, and one as a Ptinid, while the discussion is still open as to their assignment in the Tenebrionidæ, or in the Cioidæ.

The figure and description of the *Melolontha paradoxa* of Palisot de Beauvois are very unsatisfactory, and it is hard to accept Sallé's statement (see LeConte, 1873) that it is the *Xyletinus flabellicornis* of Sturm. Nevertheless Sallé may have seen the type of the former, and it would be unsafe to repudiate the well-known combination (although omitted in Junk's Catalogus) without further data. Mr. Schwarz and the writer have attempted to associate Beauvois' name with some other South Carolinian beetle, but have failed. The description differs from our *Rhipidandrus* in color, shape of thorax, and sculpture, and from the figure in size, form of posterior part of body, tarsi and antennæ. It is difficult to know where to stop in allowing for error.

In almost a century that the group has been known in technical literature, there has been but one comprehensive article. This one appeared only nine years ago (1904) and does not mention either of our United States species, although it draws together the species that had been misplaced in other families. The contributions to our knowledge of the group, arranged chronologically, but not including various local lists, are as follows:

1805–1821 Palisot de Beauvois (Ins. rec. Afr. et Amer. p. 173. pl. IV. b. fig. 1) describes *Melolontha? paradoxa* from South Carolina (collected by Bose) as a species placed in this genus with great uncertainty.

1826 Sturm (Catalogue p. 59. t. 1. fig. 7) figures the North American *flabellicornis* (work not seen by the writer—citation taken from literature).

1843 Sturm (Cat. Kafer Sammlung. p. 84) includes *flabellicornis* among the species of *Xyletinus* and cites his previous figure (1826.)

1853 Melsheimer (Cat. Coleop. U. S. p. 86) cites *flabellicornis* Sturm under *Xyletinus.*

1854 LeConte (Proc. Acad. Sci. Phil. 1854. p. 218) removes *Xyletinus flabellicornis* Sturm from the Ptinidæ but can give no indication where it should be placed.

1858 Motschulski (Etud. Ent. VII. p. 64) describes *Xyleborus? crenipennis* from Burma and mentions its resemblance to *Hylurgus* and *Hylastes.*

1862 LeConte (Classif. Coleop. N. A. pt. 1. p. 236) included *Rhipidandrus* (*Xyletinus*) *flabellicornis* Sturm in the Tenebrionidæ as forming Group II. Rhipidandri in the tribe Boletophagini. This is the first characterization of the genus.

1863 LeConte (List. Coleop. N.A. p. 62) lists *Rhipidandrus* (*Xyletinus*) *flabellicornis* in the Boletophagini.

1866 Lacordaire (Genera des Coleop. vol. VII. p. 369) describes *Eutomus,* a new genus in the Scolytidæ and includes two new species, *E. micrographus* the type from Cayenne and Columbia, and *E. madagascavensis.*

1870 Horn (Revis. Tenebr.—Tr. Amer. Philos. Sc. XIV. p. 389) includes *Rhipidandrus flabellicornis* (Sturm) in the Tenebrionidæ with *Eledona.*

1870 Gemminger and Harold (Cat. vol. 7. p. 1946) places *Rhipidandrus flabellicornis* Sturm in the Tenebrionidæ next to *Boletophagus* and notes its removal from *Xyletinus* where the species had been included in the preceding volume (1869) p. 1779.

1872 Gemminger and Harold (Cat. vol. IX. p. 2678) include both of Lacordaire's species of *Eutomus* as he had placed them in the Scolytidæ, and *crenipennis* Mots. (l c. p. 2685) still appears as a species of *Xyleborus.*

1873 LeConte (Proc. Acad. Nat. Sci. Phil. p. 329 and 335) says "*Melolontha paradoxa* Beauv., according to Sallé, is *Rhipidandrus flabellicornis* (Sturm).

1873 Crotch (Check List Coleop. Am. N. of of Mex. p. 108) lists *Rhipidandrus paradoxus* (Beauv.) with *flabellicornis* (St.) as a synonym in the Tenebrionidae.

1878 Schwarz (Proc. Am. Philos. Soc. XVII. p. 462) lists *Rhipidandrus paradoxus* Beauv., with Tenebrionidæ from Enterprise, Fla.—"rare on fungi."

1882 Horn (Bull. Soc. Ent. Fr. (6) vol. 2. p. CXXXII) gives the sexual differences of *Eutomus micrographus* Lac., and states that the genus is a synonym of *Rhipidandrus* Lec. (1862), being in no sense a Scolytid.

1883 Friedenreich (Stett. Ent. Zeit. 44 pp. 375–379) erects a new genus *Heptaphylla* in the Lamellicornia for *H. fungicola*, n.sp., from South Brazil, and described its larva. (See Arrow, 1904).

1883 LeConte and Horn (Classif. Coleop. p. 232) includes *Rhipidandrus* in the Cioidæ and mentions *Eutomus* as a synonym.

1885 Henshaw (List Coleop. p. 86) drops the synonymy and lists *R. paradoxus* Beauv., in the Cioidæ.

1886 de Borre (Ann. Soc. Ent. Belg. 30. p. 56) erects a new subtribe in the *Trogini*, the *Heptaphyllini* for *Heptaphylea fungicola* Fried. (See Arrow, 1904.)

1889 Fleutiaux et Sallé (Ann. Soc. Ent. Fr. 1889. p. 420) mistook the date of LeConte's genus *Rhipidandrus*, and so made it a synonym of *Eutomus* Lacordaire (1866). They discuss the position of the genus citing Horn's note (1882) and agree that it belongs in the Cisidæ. Lacordaire's species *micographus*, is recorded from Guadeloupe (probably wrongly identified).

1894 Waterhouse (Ann. Mag. Nat. Hist. (6) 14 p. 68) describes a new genus of Cioidæ containing two new species *Cherostus walkeri* (type) from Damma Isl. and *C. simpsoni* from Australia. The genus is compared with *Eutomus* but no species of the latter genus is mentioned.

1894 Horn (Proc. Calif. Acad. Sci. (2) vol. IV. p. 392) describes *Rh. peninsularis* n.sp., from Lower California, and, apparently forgetting his note of 1882 compares it to the Scolytid genus *Eutomus*.

1895 Henshaw (3d Supp. List. Coleop. p. 21) lists *R. peninsularis* Horn.

1898 Gorham (Proc. Zool. Soc. Lond. 1898. p. 333) describes a new species (*Eutomus sulcatus*) from St. Vincent, and records Lacordaire's type species of *Eutomus* (probably wrongly determined) from St. Vincent, Grenada, and Guadeloupe, figuring the species on pl. XXVII, fig. 4).

1904 Arrow (Ann. Mag. Nat. Hist. (7) vol. 14. p. 20–33) corrects some strange errors of classification, and synonymy, and describes two new species (*Cherostus cornutus* from St. Vincent and Grenada, and *jamaicensis* from Kingston.) He removes *Heptaphylla fungicola* Fried. from the Lamellicornia (Trogidæ) to the genus *Rhipidandrus* and accepts *Eutomus* Lac. as a synonym of the same genus, correcting the error in date of publication made by Fleutiaux and Sallé. In his discussion of the species of *Cherostus* Waterh., he removes the *Xyleborus crenipennis* of Motschulski 1858 (from Burma, Ceylon? and the Andaman Islands) and after remarks about sexual characters and a review of the larval characters as described by Friedenreich for *Rhipidandrus* (*Heptaphylla*) *fungicola*, he doubtfully indicates the relationship of the group with the lignivorus *Malacodermata*.

1905 Sharp (Biol. C. A. Coleop. vol. 2, pt. 1. p. 690–692) describes two new species (*Rh. mexicanus* and *championi*) and records a third species

Cherostus cornutus (probably in error)[1] from Oaxaca and Durango. He contends that the resemblance to *Eledona* is not deceptive but genuine, and refers the group again to the Tenebrionidæ as an aberrant group allied to the Boletophagini.

1910 Blatchley (Coleop. of Indiana p. 901) includes *Rh. paradoxus* in the Cioidæ and gives sexual differences in the antennæ, but records its occurrence under bark of oak stumps, rare.

1911 Gebien (Coleop. Cat. Tenebrionidæ III. p. 362) lists six species of *Rhipidandrus,* five species of *Cherostus* and three species of *Eledona* as forming the *Rhipidandrini,* but he omits two species viz. *peninsularis* Horn 1894 and *sulcatus* Gorham 1898, and does not refer to *paradoxus*. (Beauv.). The latter appears as *flabellicornis* Sturm, a name that has been replaced (perhaps wrongly) by Beauvois' name for forty years in the American literature.

Although the generic nomenclature appears simple, the writer believes that an error has been made in accepting Lacordaire's generic name *Eutomus* as a synonym of LeConte's genus. The former's type species is unknown to the writer but its description seems to apply to a species more nearly resembling *Cherostus cornutus* Arrow (which was formerly recorded as *micrographus* Lac.) than to LeConte's genus *Rhipidandrus.* The erection of *Cherostus* by Waterhouse for two oriental species may be justified, but the American species are believed to belong in *Eutomus.*

In regard to the biology, we have only the description of the larvae by Friedenreich (1883) translated by Arrow (1904), and numerous statements that they are found in hard woody fungi. In the experience of Mr. Schwarz and the writer *Eutomus* is usually in company with a brown species of *Arrhenoplita.*

From the following six species, represented in the National Collection, it appears that *Rhipidandrus,* type *flabellicornis* (Sturm. 1826) Lec. 1862, has the antennal rami produced into flabellæ, and is devoid of frontal sexual characters, while in *Eutomus,* type *micrographus* Lac., 1866, the antennal rami are much shorter, so that when closely appressed the antennæ appear clavate and not flabellate, and the frontal sexual characters consist of a pair of clypeal tubercles in the male and a more or less pilose frontal concavity in the female. No oriental species of this group are before the writer, but since Arrow (1904) adopted Waterhouse's genus *Cherostus,* type *walkeri* Waterh. 1894, for his West Indian species, here called *Eutomus cornutus,* it is believed that the former genus will fall as a synonym of the latter.

[1] There is great probability that this is identical with Horn's *Rh. peninsularis* but not with Arrow's *Ch. cornutus* from the West Indies.

Rhipidandrus paradoxa (Beauv.) 1805?

flabellicornis (Sturm.) 1826.

About thirty specimens from the following localities: *Can.*; *Mich.*, Grand Ledge, Detroit; *Kans.; Md.; D.C.; Ky.*, Louisville; *Ga.*, St. Catherine Island; *Fla.*, Crescent City; *La.*, Covington; *Tex.*, Columbus.

No differences in extent of antennal flabellation that might indicate sexes have been noticed in the set, although Blatchley (1910) has alluded to such a difference. The figure and description of *Melolontha paradoxa* by Beauvois are so grossly different from our specimens that it is hard to accept Sallé's statement to LeConte (1873).

?Rhipidandrus championi Sharp 1905.

Two examples from dry fungus at Alhajuela, Canal Zone, Panama, in April, 1911, by August Busck, are much smaller, narrower, and more cylindrical than the preceding, and are remarkable in the clypeus being strongly tumid, highly polished, and of a light reddish brown color, while the antennæ are much less strongly ramose than in *flabellicornis* and more strongly so than in *Eutomus* (*Cherostus*). Length. 1.8 mm., width 0.74 mm.

?Rhipidandrus (**Eutomus**) **sulcatus** (Gorham) 1898.

Three specimens from Cayamas, Cuba, and two from Santo Domingo are similar to *flabellicornis* but are more cylindrical, have a relatively larger head with finer punctation. The antennæ are hardly different from *flabellicornis*.

?Eutomus cornutus (Arrow) 1904.

A large set (about fifty) from Montserratt, W.I. (H. G. Hubbard), and a few from Santo Domingo appear specifically inseparable, and are doubtfully referred to this name. If *jamaicensis* (Arrow 1904) proves to be but a small individual of this species its range would appear to extend throughout the West Indies.

?Eutomus peninsularis (Horn) 1894.

A set of about five hundred specimens was collected by the writer at Brownsville, Texas, May 7, 1904, in a hard brown fungus.[2] Horn's species came from Lower California and no typical material has been seen. A single male from San Diego, Texas, and three specimens (2 males and 1 female) from Tampico, Mexico,

[2] This fungus was determined for me as *Ganoderma pseudoboletus* but I now believe the determination is incorrect.

December 27, 1909, collected by E. A. Schwarz are probably the same species. They are similar to *cornutus*? but are smaller, lighter brown with much paler antennæ, and the males are much shorter than the females.

Eutomus panamaensis n.sp.

Very dark brown, legs reddish, antennae testaceus, sides parallel, body less than twice as long as wide. Head and pronotum alutaceous, or finely reticulate, the ridges shining, the intervals opaque except for a minute polished point in the center of each area; pronotum five-ninths as long as wide. Elytra shining, strongly sulcate, the intervals becoming costæ on each side of which are faint rugosities, and very minute hairs, each pointing obliquely towards the ridge. Length, 3 to 3.5 mm.

Male.—Clypeus with two obtuse horns which are separated by two-sevenths of the interocular space.

Female.—Clypeus tumid, median third smooth, impunctate, front feebly concave, with scattering very short hairs which are scarcely more dense than those on the thorax.

Type: No. 16841 U. S. N. M.

About one hundred and thirty specimens from dry woody fungus were taken at Alhajuela, Canal Zone, Panama, in April, 1911, by Mr. August Busck, among a numerous colony of *Arrhenoplita cioides.*

Differs from the Texan species (supposed to be *peninsularis* Horn) and from the West Indian species (supposed to be *cornutus* Arrow) by its shorter, more robust form, and shining elytra, and by the almost total absence of the frontal pilosity of the female.

Eutomus n. sp.

Specimens of a fourth species of this genus have just been donated to the National Museum by Mr. W. S. Blatchley who collected them at Dunedin, Florida, in January, 1913. Mr. Chas. Dury informs the writer that he expects soon to publish the description of this species in Entomological News. It is much smaller than the three species of this genus above mentioned, being about the size of *Rh flabellicornis.*